

IN THE CLAIMS

Please amend Claims 1, 3, 5-7, 10, 11, 13-21, 23, 25 and 37-40 and add new Claims 41-44 to read as follows.

1. (Currently amended) A method for producing an electron-emitting device, comprising the steps of:

- (A) disposing a cathode electrode on a surface of a substrate;
- (B) providing an electrode opposite the cathode electrode;
- (C) disposing plural pieces of ~~fiber containing carbon as a main component~~ fiber containing carbon on the cathode electrode; and
- (D) applying a potential higher than a potential applied to the cathode electrode under depressurized condition to an electrode opposite the cathode electrode.

2. (Original) The method for producing an electron-emitting device, according to claim 1, wherein

said electrode opposite the cathode electrode is an anode electrode provided apart the substrate.

3. (Currently amended) The method for producing an electron-emitting device, according to claim 1, wherein

said electrode opposite the cathode electrode is ~~a leading electrode~~
an extracting electrode provided apart from the cathode electrode on the surface of the substrate.

4. (Original) The method for producing an electron-emitting device, according to claim 1, wherein

said step of applying potential to the electrode opposite the cathode electrode is a step of increasing the number of emission sites.

5. (Currently Amended) The method for producing an electron-emitting device, according to claim 1, wherein said potential applied to the electrode opposite the cathode electrode is potential at which an electron is emitted from ~~the fiber~~ at least one fiber of a plurality of fibers containing carbon as a main component.

6. (Currently Amended) The method for producing an electron-emitting device, according to claim 1, wherein

said step of applying the potential to the electrode opposite the cathode electrode is performed under condition of a gas chemically or physically reactive to the plural pieces of fiber.

7. (Currently Amended) The method for producing an electron-emitting device, according to claim 6, wherein

said gas chemically reactive to the plural pieces of fiber is one of O₂, H₂, CO₂, and H₂O.

8. (Original) The method for producing an electron-emitting device, according to claim 6, wherein

a pressure for introducing the gas is equal to or over 1×10^{-4} Pa.

9. (Original) The method for producing an electron-emitting device, according to claim 6, wherein

said step of applying the potential to the electrode opposite the cathode electrode is a step of applying a pulse voltage between the cathode electrode and the electrode opposite the cathode electrode.

10. (Currently Amended) The method for producing an electron-emitting device, according to claim 1, wherein

said plural pieces of fiber [[is]] are formed by decomposing a hydrogen carbide gas.

11. (Currently Amended) The method for producing an electron-emitting device, according to claim 10, wherein
said plural pieces of fiber ~~[[is]]~~ are formed by decomposing the hydrogen carbide gas using a catalyst provided on the cathode electrode in advance.

12. (Original) The method for producing an electron-emitting device, according to claim 11, wherein
said catalyst is one of Fe, Co, Pd, and Ni, or an alloy consisting of materials selected from among Fe, Co, Pd, and Ni.

13. (Currently Amended) The method for producing an electron-emitting device, according to claim 1, wherein
said plural pieces of fiber ~~[[is]]~~ are formed by graphite nanofiber, carbon nanotube, or amorphous carbon fiber.

14. (Currently Amended) The method for producing an electron-emitting device, according to claim 1, wherein
said plural pieces of fiber ~~comprises~~ comprise a graphen.

15. (Currently Amended) The method for producing an electron-emitting device, according to claim 1, wherein

said plural pieces of fiber ~~comprises~~ comprise a plurality of graphens.

16. (Currently Amended) The method for producing an electron-emitting device, according to claim 15, wherein

said plurality of graphens are layered in an axial direction of the plural pieces of fiber.

17. (Currently amended) A method for producing an electron source obtained by arranging a plurality of electron-emitting devices, which are each produced according to the method of any one of claims 1 to 16.

18. (Currently amended) A method for producing an image-forming apparatus having an electron source and an image-forming member, wherein
said electron source is produced ~~[[in]]~~ according to the method ~~according to~~
of claim 17.

19. (Currently amended) A method for producing an electron source having a plurality of electron-emitting devices, comprising the steps of:

(A) providing on a substrate a plurality of electron-emitting devices comprising plural pieces of ~~fiber each containing carbon as a main component~~ fiber

containing carbon, and plural pieces of wiring electrically connected to at least one of the plurality of electron-emitting devices;

(B) measuring by applying a voltage to at least a part of the plurality of electron-emitting devices, an electrical characteristic of said at least a part of the plurality of electron-emitting devices to which the voltage is applied;

(C) reducing a difference in electrical characteristic among the plurality of electron-emitting devices based on a measurement result, wherein

said step of reducing the difference in characteristic among the plurality of electron-emitting devices comprising a step of emitting an electron from at least one of the plurality of electron-emitting devices under depressurized condition.

20. (Currently amended) The method for producing an electron source, according to claim 19, wherein

said plural pieces of wiring ~~comprises~~ comprise plural pieces of row direction ~~wiring~~ wirings, and plural pieces of column direction ~~wiring~~ wirings crossing the row direction ~~wiring~~ wirings, and each of the electron-emitting devices is connected to one of the row direction ~~wiring~~ wirings and one of the column direction ~~wiring~~ wirings.

21. (Currently amended) The method for producing an electron source, according to claim 20, wherein

said step of reducing the difference in characteristic among the plurality of electron-emitting devices contains a step of emitting an electron from a desired electron-emitting device by repeating a step of selecting from said plural pieces of column direction wiring wirings or said plural piece of row direction wiring wirings, a part of the pieces of column direction wiring wirings or row direction wiring wirings, and emitting an electron from an electron-emitting device connected to the selected wiring.

22. (Original) The method for producing an electron source, according to claim 19, wherein

said step of reducing the difference in characteristic among the plurality of electron-emitting devices contains a step of emitting an electron from a desired electron-emitting device by repeating a step of selecting a part of electron-emitting devices from among the plurality of electron-emitting devices and emitting an electron from the selected electron-emitting device.

23. (Currently amended) The method for producing an electron source, according to claim 19, wherein:

said electron-emitting device contains a cathode electrode to which the fiber is electrically connected, and a leading electrode provided apart from the cathode electrode; and

said step of emitting an electron from the electron-emitting device is performed by applying a voltage between the cathode electrode and the ~~leading electrode~~ extracting electrode.

24. (Original) The method for producing an electron source, according to claim 19, wherein

said step of emitting an electron from the electron-emitting device is performed by applying a voltage between the electrode provided apart from the substrate and the electron-emitting device.

25. (Currently amended) The method for producing an electron source, according to claim 19, wherein:

said electron-emitting device contains a cathode electrode to which the fiber is electrically connected, and a ~~leading electrode~~ an extracting electrode provided apart from the cathode electrode; and

said step of emitting an electron from the electron-emitting device is performed by applying a potential difference between an electrode provided apart from the substrate and the electron-emitting device.

26. (Original) The method for producing an electron source, according to claim 19, wherein

said step of reducing the difference in characteristic among the plurality of electron-emitting devices is a step of increasing the number of emission sites of at least one electron-emitting device.

27. (Original) The method for producing an electron source, according to claim 19, wherein

said step of reducing the difference in characteristic among the plurality of electron-emitting devices is performed in ambient of a gas chemically or physically reactive to the fiber.

28. (Original) The method for producing an electron source, according to claim 27, wherein

said gas chemically reactive to the fiber contains a gas selected at least from among O₂, H₂, CO₂, and H₂O.

29. (Original) The method for producing an electron source, according to claim 28, wherein

a pressure for introducing the gas is equal to or over 1×10^{-4} Pa.

30. (Original) The method for producing an electron source, according to claim 27, wherein

said step of emitting an electron from the electron-emitting device is performed by applying a pulse voltage to the electron-emitting device.

31. (Original) The method for producing an electron source, according to claim 19, wherein

said fiber is formed by decomposing a hydrogen carbide gas.

32. (Original) The method for producing an electron-emitting device, according to claim 31, wherein

said fiber is formed by decomposing the hydrogen carbide gas using a catalyst provided on the cathode electrode in advance.

33. (Original) The method for producing an electron-emitting device, according to claim 32, wherein

said catalyst is one of Fe, Co, Pd, and Ni, or an alloy consisting of materials selected from among Fe, Co, Pd, and Ni.

34. (Original) The method for producing an electron-emitting device, according to claim 19, wherein

said fiber is formed by graphite nanofiber, carbon nanotube, or amorphous carbon fiber.

35. (Original) The method for producing an electron-emitting device,
according to claim 19, wherein

said fiber comprises a graphen.

36. (Original) The method for producing an electron-emitting device,
according to claim 19, wherein

said fiber comprises a plurality of graphens.

37. (Currently amended) An electron-emitting device according to
claim 36, wherein

said plurality of graphens are layered in an axial direction of the fiber
containing carbon as a main component.

38. (Currently amended) A method for producing an image-forming
apparatus having an electron source and an electron-emitting member, wherein

said electron source is produced ~~in the method~~ according to the method of
any one of claims 19 to 37.

39. (Currently amended) The method for producing an image-forming
apparatus, according to claim 38, wherein

said image-forming apparatus is obtained by seal bonding a first substrate provided with the image-forming member with a second substrate provided with the electron source[[:]], and an electrical characteristic of the electron-emitting device is measured before the first and second substrates are seal bonded with each other.

40. (Currently amended) The method for producing an image-forming apparatus, according to claim 38, wherein

said image-forming apparatus is obtained by seal bonding a first substrate provided with the image-forming member with a second substrate provided with the electron source[[:]], and said step of reducing the difference in electrical characteristic among the plurality of electron-emitting devices is performed before the first and second substrates are seal bonded with each other.

41. (New) A method for producing an electron-emitting device according to Claim 5, wherein said step of applying the potential to the electrode opposite the cathode electrode includes a process of removing a part of the at least one fiber using heat due to electron emitting from the at least one fiber among the plurality of fibers containing carbon as a main component.

42. (New) A method for producing an electron-emitting device, comprising the steps of:

- (A) disposing a first electrode, having a plurality of carbon fibers, on a surface of a substrate;
- (B) arranging a second electrode opposite the first electrode;
- (C) removing a part of at least one of the plurality of carbon fibers by applying a voltage between the first and second electrodes under depressurized condition.

43. (New) A method for producing an electron source having a plurality of electron-emitting devices, wherein said electron-emitting devices are each produced according to the method of claim 42.

44. (New) A method for producing an image-forming apparatus having an electron source and an image-forming member, wherein said electron source is produced according to the method of claim 43.